Data Limitations and Validation Report

Lockheed Idaho Technologies

SDG 93030806

Argonne National Laboratory - West
Semivolatile Organic Compounds
Three Aqueous Samples

Validated by:

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#### 1.0 INTRODUCTION

The Argonne National Laboratory - West sample set for Case No. 93030806, SDG 93030806 consists of three aqueous samples analyzed for Target Compound List (TCL) semivolatile organic compounds. All analyses were conducted using SW-846 Method 8270 analytical and reporting protocols. The analyses were performed by the Biospherics Laboratory using the protocols outlined in the ANL-West SOW. The data were reported as a Level IV analysis. A Level A validation was performed on the samples contained in this SDG. A total of 192 sample data points were reported in this analytical data set.

The analytical data from these analyses were reviewed by HALLIBURTON NUS Corporation personnel in accordance with ERP Standard Operating Procedure SMO-SOP-12.1.3.

#### 2.0 QUALITY CONTROL SUMMARY

The data were evaluated based on the following parameters:

Data Completeness

- Holding Times
  GC/MS Tuning and Mass Calibration
  Initial and Continuing Calibrations
- Blank Analyses
  Surrogate Spike Recoveries
  Matrix Spike/Matrix Spike Duplicate Results
  Internal Standards Performance
  System Performance and Detection Limits
  Compound Identification
- \* Compound Quantitation Laboratory Performance

The asterisk indicates that all quality control criteria were met for this parameter. Problem areas affecting data usability are discussed in Section 4.0 of this report. A Glossary of Data Validation Flags which defines the validation qualifiers applied on a sample-specific basis is presented in Section 6.0.

#### 3.0 DATA COMPLETENESS

The data presented in Case No. 93030806, SDG 93030806 consists of semivolatile organic results for three (3) aqueous samples as follows:

MW-11(93030806-1) EBR-II No. 1(93030806-2) EBR-II No.2(93030806-3)

The data package was incomplete as submitted. Chain of custody forms, initial and continuing calibration Form VIs and VIIs, and surrogate recovery Form IIs were not contained in the data package. Hence, the data could not be evaluated for these parameters. The presentation and documentation of data package deliverables were extremely poor. The data package does not conform to a Level A deliverable. Notable omissions on the laboratory forms includes: incorrect internal standard areas reported on the Form VIII for the environmental samples, and an omission of a positive result that was less than the detection limit for bis(2-ethylhexyl)phthalate. No contact with the laboratory was required to complete the validation of this package.

#### 4.0 SUMMARY OF DATA USABILITY

It should be noted that a chain of custody form for the samples contained in this SDG was not provided. However, an Analysis Bench Sheet was provided with the date of sample collection. All holding times were met. No further action was necessary.

The initial calibration DFTPP Form V and associated Form VI were not included in this SDG. A semivolatile DFTPP instrument performance check Form V was provided for 03/22/93 at 18:09. However, the associated continuing calibration Form VIIs were not provided. Hence, the samples were not evaluated for calibration noncompliances.

It should be noted that the laboratory failed to provide a surrogate recovery Form II for the samples contained in this SDG. A preliminary surrogate report was available for samples EBR-II No 1(93030806-2) and EBR-II No 2(93030806-3), which reported the necessary information. Surrogate recoveries for sample MW-11(93030806-1) were determined from the sample quantitation report. No action was taken for sample EBR-II No 1(93030806-2) since only one acid fraction surrogate was high. Samples MW-11(93030806-1) and EBR-II No 2(93030806-3) yielded high Percent Recoveries (%Rs) for 2-fluorophenol and phenol-d5. The nondetected results for the acid-fraction target compounds in these samples were qualified as estimated, (UJ).

The Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses of sample EBR-II No. 2(93030806-3) yielded high %Rs for N-nitroso-di-n-propylamine, 2,4-dinitrotoluene and pyrene. High Relative Percent Differences (RPDs) were also reported for 1,4-dichlorobenzene and 4-nitrophenol. Positive results only are affected by these noncompliances. No action was taken since only nondetected results were reported for these compounds in the unspiked sample.

A high %R was reported for 4-chloro-3-methylphenol in the blank spike sample. No action was taken since no positive results were reported for this compound in the affected samples and nondetected results are not compromised by this noncompliance.

It should be noted that the laboratory reported internal standard areas for 1,4-dichlorobenzene-d4, napthalene-d8 and acenaphthene-d10 in all three samples incorrectly. The 12 hour standard and upper/lower limits were also reported incorrectly for naphthalene-d8. Based on the raw data, the data reviewer has amended the appropriate forms.

Annotated laboratory Form I data summary reports showing the data and relevant qualifier flags applied are presented in Appendix A of this report. Copies of the unqualified data summary reports as reported by the laboratory are provided in the attached Appendix B. The attached Appendix C includes documentation to support the findings discussed in this report.

A sample-specific summary of the data validation flags applied is depicted in Table 1, appearing on the following page. The qualifier flags used as a result of the validation process are defined in Section 6.0 (Glossary of Data Validation Flags) of this report. Details regarding the application of the validation qualifiers are discussed in the remainder of this section.

# TABLE 1 LOCKHEED IDAHO TECHNOLOGIES Case No. 93030806, SDG 93030806

#### SEMIVOLATILE ORGANIC COMPOUNDS

Sample No.	Qualifier Flags
MW-11(93030806-1)	J <sup>1</sup>
EBR-II No.1(93030806-2) EBR-II No.2(93030806-3)	$\mathbf{J}^1$

<sup>\*</sup>See Section 6.0 Glossary of Data Validation Flags for qualifier flag definitions.

#### 4.1 Holding Times

It should be noted that a chain of custody form for the samples contained in this SDG was not provided. However, an Analysis Bench Sheet was provided with the date of sample collection. All holding times were met. No further action was necessary.

#### 4.2 Calibrations

The initial calibration DFTPP Form V and associated Form VI were not included in this SDG. A semivolatile DFTPP instrument performance check Form V was provided for 03/22/93 at 18:09. However, the associated continuing calibration Form VIIs were not provided. Hence, the samples were not evaluated for calibration noncompliances.

#### 4.3 Surrogate Recoveries

The %Rs for phenol-d5 and 2-fluorophenol were above the upper quality control limits in samples MW-11(93030806-1) and EBR-II No 2(93030806-3). Only nondetected results were reported for the acid fraction compounds in these samples and these nondetects were qualified as estimated, (UJ).

A high %R for 2-fluorophenol was noted for sample EBR-II No 1(93030806-2). No action was taken since only one surrogate was noncompliant.

#### 4.4 Matrix Spike/Matrix Spike Duplicate Results

The MS/MSD analyses of sample EBR-II No. 2(93030806-3) yielded high %Rs for N-nitroso-di-n-propylamine, 2,4-dinitrotoluene and pyrene. High RPDs were also reported for 1,4-dichlorobenzene and 4-nitrophenol. Positive results only are affected by these noncompliances. No action was taken since only nondetected results were reported for these compounds in the unspiked sample.

#### 4.5 Blank Spike Results

A high %R was reported for 4-chloro-3-methylphenol in the blank spike sample. No action was taken since no positive results were reported for this compound in the affected samples and nondetected results are not compromised by this noncompliance.

#### 4.6 Internal Standard Areas

It should be noted that the laboratory reported internal standard areas for 1,4-dichlorobenzene-d4, napthalene-d8 and acenaphthene-d10 in all three samples incorrectly. The 12 hour standard and upper/lower limits were also reported incorrectly for naphthalene-d8. Based on the raw data, the data reviewer has amended the appropriate forms.

#### 4.7 Additional Comments

It should be noted that the laboratory failed to report a positive result for bis(2-ethylhexyl)phthalate which was below the detection limit in sample EBR-II No 2(93030806-3). The quantitation report and chromatogram for this sample can be found in the support documentation - Appendix C.

It should be noted that the detection limits on the laboratory Form Is may be incorrect. The detection limits may be low by a factor of two since only 500 ml were extracted instead of the method indicated amount of 1000 ml

#### 5.0 SUMMARY OF LABORATORY PERFORMANCE

Chain of custody forms and laboratory Form IIs, Vs, VIs and VIIs were not contained in the data package. All three samples had high %Rs reported for acid-fraction surrogates. The MS/MSD analyses yielded high %Rs and high RPDs for several compounds. A high %R was reported for 4-chloro-3-methylphenol in the blank spike sample. The internal standard Form VIII was reported incorrectly. The laboratory failed to report a positive result in sample EBR-II No 2(93030806-3).

The overall documentation and completeness of the data package deliverables were extremely poor. The inadequate presentation of the information in this package has compromised the validation review.

#### 6.0 GLOSSARY OF DATA VALIDATION FLAGS

The following data validation flags were applied to the sample data for reasons detailed previously in this report:

J<sup>1</sup> - Estimate, (UJ), nondetected results reported for the acid fraction target compounds as a result of high acid fraction surrogate %Rs.

#### 7.0 REFERENCES

The data referenced in this report were validated in accordance with the protocols outlined in ERP Standard Operating Procedure SMO-SOP-12.1.3 as presented in ERP-SOW-37. In addition, details stipulating laboratory procedures as outlined in the ANL-West SOW were referenced.

## APPENDIX A QUALIFIED LABORATORY RESULTS

#### 1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: BIC	SPHERICS	Contract	: ARGONNE NAT LAB	MW-11	
Lab Code: 930	30806 Case No.:	SAS No.	:	SDG No	·:
Matrix: (soil/w	ater) WATER		Lab Sample ID:	93030806-1	
Sample wt/vol:		nL) mL	Lab File ID:	>DH774::D4	
Level: (low/med	) LOW		Date Received:	03/03/93	_
% Moisture:	0 decanted: (Y	/N) <u>N</u>	Date Extracted:	03/09/93	
Concentrated Ex	tract Volume: 1000	(uL)	Date Analyzed:	03/22/93	
Injection Volum	e: <u>1</u> (uL)		Dilution Factor:	1	
GPC Cleanup: (Y	/N) <u>N</u>	oH:			<b>ያ</b>
		CONCENTRA	TION UNITS:		r
CAS NO.	COMPOUND	(ug/L or i		ug/L	Q
108-95-2			10		 
111-44-4		l)ether	10		13 NJ
195-57-8	2-Chlorophenol		10		
541-73-1	-,		10		W LET
106-46-7		ene	10	<del></del>	U
95-50-1	1,2-Dichlorobenz	ene	10	<del></del>	!U
195-48-7	2-Methylphenol		10		س س
1106-60-1	2,2'-oxybis(1-Ch	loropropane)			NR
1621-64-7-	4-Methylphenol	_	10		W UT
167-72-1	N-Nitroso-di-n-p Hexachloroethane	ropylamine	10		·U
98-95-3-	nexachioroethane Nitrobenzene		10		I U
78-59-1	Nitropenzene		10		U
88-75-5	2-Nitrophenol		10		U
1105-67-9	2,4-Dimethylphen	-1	10		X IT
111-91-1	bis(2-Chloroetho	OT	10		V UJ
120-83-2	2,4-Dichlorophen	xy)methane	10		υ
120-82-1	1,2,4-Trichlorobe	01 907ena	50		18 UJ
91-20-3	Naphthalene	-112-611-6	10		ַן טַן
106-47-8	4-Chloroaniline		10		U
87-68-3	Hexachlorobutadio	ene	50		įŪ
159-50-7	4-Chloro-3-methy:		10		Ü
91-57-6	2-Methylnaphthale	ene	10		TA CH
177-47-4	Hexachlorocyclope	entadiene	10		U
88-06-2	2,4,6-Trichloroph	nenol	10		IU I
195-95-4	2,4,5-Trichloroph	nenol	10		*UJ
91-58-7	2-Chloronaphthale	ene	10	<del></del>	IN KI
188-74-4	2-Nitroaniline		10		
131-11-3	- Dimethylphthalate	•	10		יט :
1208-96-8	- Acenaphthylene		10		10
06-20-2	- 2,6-Dinitrotoluer	ie	10		U
9-09-2	3-Nitroaniline		50		IU I
103-32-3	Acenaphthene		10		U
					<del>   </del>

Lab Name:	BIOSPHER	ıcs		Contract:	ARGONNE NAT LAB	MW-11	!
Lab Code:	93030806	Case No.:		SAS No.:		SDG No.	.:
Matrix: (so	il/water)	WATER			Lab Sample ID:	93030806-1	
Sample wt/vo	ol:	500	(g/mL)	mL	Lab File ID:	>DH774::D4	<del></del>
Level: (low,	/med)	LOW			Date Received:	03/03/93	<del>_</del>
% Moisture:	0	decan	ted: (Y/N)	N	Date Extracted:	03/09/93	
Concentrated	d Extract	Volume:	1000	(uL)	Date Analyzed:	03/22/93	<del></del>
Injection Vo	olume:	1	(uL)		Dilution Factor:	1	V
GPC Cleanup:	(Y/N)	N	. Hq		-		<b>)</b>
				CONCENTRAT	ION UNITS:		V
CAS NO.		COMPOUND		(ug/L or u		ug/L	_ Q
51-28-5		2,4-Dinit	rophenol		50		בע צו
100-02-7		4-Nitroph	enol		50	···	W UJ
132-64-9		Dibenzofu	ran		10		Ü
121-14-2		•			10	······································	Ü
84-66-2					10		Ü
7005-72-3			henyl-phei	nylether	10		יט
86-73-7					10		ίŪ
100-01-6					50		Ü
534-52-1		4,6-Dinit	ro-2-methy	ylphenol	50		W W
86-30-6		N-Nitroso	diphenylar	mine (1)	10		Ü
101-55-3				ylether	10		IU 1
118-74-1					10		U
87-86-5					10		TN MI
85-01-8					10		Ü
120-12-7					10		Ü
86-74-8		Carbazole					NR
84-74-2			lphthalate	B	10		ט
206-44-0		Fluoranth	ene		10		Ü
129-00-0		Pyrene			10		U
85-68-7			ylphthala		10		įŪ
91-94-1 56-55-3			lorobenzio	line	20	··.	U
		Benzo(a)a	ntnracene		10		IÜ I
218-01-9		Chrysene			10		U
117-81-7 117-84-0		bis (2-Eth			10		IU I
205-99-2		Di-n-octy Benzo(b) f	lphthalate		10		Ü
207-08-9			luorantne: luoranthe:		10		1U
<sub> </sub> 207-08-9  50-32-8		Benzo(k)I		16	10	<del></del>	Ü
193-39-5			yrene 2,3-cd)py:	rana	10	<u></u>	10
153-70-3			2,3-cd/py. h)anthrace		10	-	Ü
191-24-2			n,anchraci ,i)peryle:		10		10
<b></b>	- <del>-</del>	penzo (g, n	+ 1 her Are:	16	10		U

Lab Name: BIOSPHER	ICS		Contract:	ARGONNE NAT LAB	EBR II NO1	
Lab Code: 93030806	Case No.:		-		SDG No.:	
Matrix: (soil/water)	WATER			Lab Sample ID:	93030806-2	
Sample wt/vol:	500	(g/mL)	mL	Lab File ID:	>DH775::D4	•
Level: (low/med)	LOW			Date Received:	03/03/93	
% Moisture: 0	decan	ted:(Y/N)	N	Date Extracted:	03/09/93	_
Concentrated Extract	Volume:	1000	(uL)	Date Analyzed:	03/22/93	
Injection Volume:	1	(uL)		Dilution Factor:	1	_
GPC Cleanup: (Y/N)	N	pH:	<u> </u>			Alba
			CONCENTRAT	ION HATTS:		Jan.
CAS NO.	COMPOUND		(ug/L or ug		ug/L	. Q
108-95-2				10		ט
111-44-4	bis(2-Chlo	roethyl) e	ther	10		Ü
95-57-8	2-Chloroph	nenol	i	10		Ū
541-73-1				10		υ
106-46-7				10		Ū
95-50-1	1,2-Dichlo	robenzene	•	10		U
95-48-7			i	10		ו טו
108-60-1	2,2'-oxybi	s(1-Chlor	opropane)			NR
106-44-5	4-Methylph	enol	ì	10		Ŭ
621-64-7	N-Nitroso-	di-n-prop	ylamine	10	The state of the s	U
67-72-1			ì	10	**************************************	Ŭ
98-95-3			1	10		U
78-59-1	Isophorone	<b>:</b>	i	10	<u>l</u>	Ü
88-75-5	2-Nitrophe	enol	!	10		U
105-67-9	2,4-Dimeth	ylphenol	i	10		U I
	bis(2-Chlo		methane	10		Ū
120-83-2	2,4-Dichlo		i	50		บ
120-82-1	1,2,4-Tric	hlorobenz	ene	10		<del>U</del>
	Naphthalen	e	į	10		Ü
106-47-8	4-Chloroan	iline	;	50	1	Ü
	Hexachloro	butadiene	į	10		Ü
59-50-7	4-Chloro-3	-methylph	enol i	50		<del></del>
91-57-6	2-Methylna	phthalene		10		Ū
	Hexachloro	cyclopent	adiene i	10		<del>-</del>
38-06-2	2,4,6-Tric	hlorophen	ol !	10		Ü
95-95-4	2,4,5-Tric			10		<del>"</del>
91-58-7	2-Chlorona			10		Ü
	2-Nitroani	line	i	10		<del></del>
131-11-3	Dimethylph	thalate	1	10		Ü
208-96-8	Acenaphthy		i	10		<del></del>
506-20-2	2,6-Dinitr		1	10		Ü
99-09-2	3-Nitroani	line	i	50		<del>0</del> -
33-32-9	Acenaphthe	ne	; 1			<del>U</del>

#### 1C SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	BIOSPHER	ics		Contract:	ARGONNE NAT LAB	EBR II NO1	
Lab Code:	93030806	Case No.:	3-+	SAS No.:		SDG No.:	
Matrix: (soi	il/water)	WATER	ı		Lab Sample ID:	93030806-2	_
Sample wt/vo	01:	500	(g/mL)	mL	Lab File ID:	>DH775::D4	_
Level: (low/	(med)	LOW			Date Received:	03/03/93	-
% Moisture:	0	decan	ted:(Y/N)	N	Date Extracted:	03/09/93	-
Concentrated	d Extract	Volume:	1000	(uL)	Date Analyzed:	03/22/93	_
Injection Vo	olume:	1	(uL)		Dilution Factor:	1	- Alba
GPC Cleanup:	(Y/N)	N	pH:				J. 1. 1.
				CONCENTRAT	ION UNITS:		V
CAS NO.		COMPOUND		(ug/L or u		ug/L	Q
					•		•
					] · · ·		I 1
51-28-5					50		ט
100-02-7					50		U
132-64-9					10		iU i
121-14-2					10	·····	U
84-66-2					10		tU i
7005-72-3 186-73-7			nenyt-buei	nyterner	10		U
100-01-6			ilina		50		<u>י</u> די
1534-52-1				vlnhenol	50		10
86-30-6					10		Ü
101-55-3					10	· · · · · · · · · · · · · · · · · · ·	
118-74-1				, 100, 101	10	· · · · · · · · · · · · · · · · · · ·	<del>ט</del>
87-86-5					10	<del></del>	10 1
85-01-8					10		U
120-12-7		Anthracen	e		10		lu l
86-74-8		Carbazole					NR
84-74-2		Di-n-buty	lphthalat	e	10	· · · · · · · · · · · · · · · · · · ·	iu i
206-44-0		Fluoranth	ene		10		U
129-00-0		Pyrene			10		U
85-68-7		Butylbenz			10		Ū
91-94-1		3,3'-Dich			20		ָט
56-55-3		Benzo(a)a	nthracene		10		IU I
218-01-9		Chrysene			10		U
117-81-7		bis(2-Eth			10		IU I
117-84-0			lphthalat		10		U
205-99-2			luoranthe		10		וט
<sub>1</sub> 207-08-9 150-32-8		•	luoranthe	ne	10		U
193-39-5		Benzo(a)p	yrene 2,3-cd)py	rana	10		1U 1
153-70-3			2,3-cd/py h)anthrac		10		Ü
191-24-2			,i)peryle		10		יט י
<b>-</b> i		(9/1/	, _, pubjec		10	·	<del> </del>

### 1B SEMINOLATILE ORGANICS ANALYSIS DATA SHEET

	SEMI VO.	LATILL ONG	MITCS MIN	H15+6 5/11/1	0		<del></del>
Lab Name:	BIOSPHERI	CS		Contract:	ARGONNE NAT LAB	EBR II NO2	1
Lab Code:	93030806	Case No.:		SAS No.:		SDG No.	:
Matrix: (soi						93030806-3	
Sample wt/vo	1:	500	(g/mL)	mL	Lab File ID:	>DH776::D4	<del></del>
Level: (low/	'med)	LOW			Date Received:	03/03/93	<del></del>
% Moisture:	0	decan	ted:(Y/N)	N	Date Extracted:	03/09/93	<del></del>
Concentrated	Extract	Volume:	1000	(uL)	Date Analyzed:	03/22/93	
Injection Vo	olume:	1	(uL)		Dilution Factor:	1	- N
GPC Cleanup:	: (Y/N)	N	pH:		-		47,
				CONCENTRAT	ION UNITS:		η,
CAS NO.		COMPOUND		(ug/L or u		ug/L	Q
	***	_			1		1
108-95-2		Phenol			10		TH W
111-44-4				ether	10		Ū
95-57-8					10	<del></del>	W 1/J
541-73-1					10		\ <u>\</u> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
106-46-7 1,4-Dichlorobenzene					10		<u> 1<sup>U</sup> 1</u>
95-50-1				е	10		'U
95-48-7					10		W UJ
108-60-1				ropropane)			NR
106-44-5					10		四切
621-64-7				pylamine	10		ָ <sup>'</sup> U
67-72-1					10		1Ŭ I
98-95-3					10		U
78-59-1					10		U
88-75-5		2-Nitroph	enol		10		N NO
105-67-9		2,4-Dimet			10		U W
111-91-1		bis (2-Chl 2,4-Dichl	_		50		•
120-83-2		1,2,4-Tri			10		IV UJ
91-20-3-		Naphthale		Lene	10		lu l
106-47-8		4-Chloroa			50		<del></del>
187-68-3		Hexachlor		e	10		U
159-50-7		4-Chloro-			50		W 105
91-57-6		2-Methyln			10		!U
177-47-4		Hexachlor			10		IÜ
88-06-2		2,4,6-Tri			10		דא פי
195-95-4			chlorophe		10		W (U)
91-58-7			aphthaler		10		U
188-74-4		· 2-Nitroan			10		ίυ
131-11-3		Dimethylp			10		U
208-96-8		Acenaphth			10		l <del>u</del>
606-20-2			rotoluene	•	10		U
199-09-2		- 3-Nitroar			5(		U
83-32-9		- Acenaphth	nene		1		Ū

#### 1C SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

hb Name:	BIOSPHER	ıcs	<u> </u>	Contract:	ARGONNE NAT LAB	EBR II NO2	
ab Code:	93030806	Case No.:		SAS No.:		SDG No.:	
watrix: (soi	l/water)	WATER			Lab Sample ID:	93030806-3	_
Sample wt/vo	1:	500	(g/mL)	mL	Lab File ID:	>DH776::D4	<u></u>
Level: (low/	med)	LOW			Date Received:	03/03/93	_
% Moisture: _	0	_ decan	ted:(Y/N)	N	Date Extracted:	03/09/93	<b>-</b> .
Concentrated	Extract	Volume:	1000	(uL)	Date Analyzed:	03/22/93	_
Injection Vo.	lume:	1	(uL)		Dilution Factor:	1	- NIE
GPC Cleanup:	(Y/N)	N	pH:				73
				CONCENTRATI	ION UNITS:		ľ
CAS NO.		COMPOUND		(ug/L or uç	g/Kg)	ug/L	- Q
51-28-5		2,4-Dinit	rophenol		50		18 UT
100-02-7		4-Nitroph	enol		50		20 A
132-64-9			ran		10	<del></del>	<u> </u>
121-14-2			rotoluene	į	10		10
84-66-2		Diethylphi	thalate		10		<del> </del>
7005-72-3		4-chloropl	henvl-phen	vlether i	10		יטי
86-73-7		Fluorene		,	10		
100-01-6			iline	į	50		יי ט
534-52-1		4,6-Dinit	ro-2-methy	rlpheno:	50		
86-30-6		N-Nitroso	diphenvlam	une (1)	10		W 10
101-55-3		4-Bromophe	envl-phenv	lether	10		U
118-74-1		Hexachlor	benzene		10		10 1
87-86-5		Pentachlo	rophenol	ļ	10		U
85-01-8		Phenanthre	ene	!	10		V UT
120-12-7		Anthracene	2	}	10		ט
86-74-8		Carbazole		:	10	<del></del>	<del></del>
84-74-2		Di-n-buty	lphthalate		10	<del></del>	NR U
206-44-0		Fluoranthe			10		
129-00-0		Pyrene		i	10		Ü
85-68-7		Butylbenzy	/lphthalat	e i	10		U
91-94-1		3,3'-Dich]			20		
56-55-3 ~		Benzo (a) ar			10		U
218-01-9		Chrysene		i	10		וט
117-81-7		bis(2-Ethy	/lhexvl)ph	thalate i	10		U
117-84-0	· <b></b> -	Di-n-octyl			10		IU I
205-99-2		Benzo(b) f]			10		U
207-08-9		Benzo(k)f]			10		IU I
50-32-8		Benzo(a)py		. L	10		Ū
193-39-5		Indeno(1,2		ene	10		ייי עו <u>י</u>
53-70-3		Dibenz(a,			10		U
191-24-2		Benzo (g, h,			10		ייין
			- <u>-</u> -	ł		<del></del>	U